ABSTRACT OF THE DISCLOSURE

A reusable self-aligning precision latch, including a latch body for mounting a latch assembly, and an interface cone is described herein. A lead screw, coupled to the latch body on one end, pivots at an interface on the latch body allowing for self-alignment. A drive cam having a plurality of surfaces and positioned on the lead screw engages a plurality of linkage assemblies such that at least two links are driven. A flexure ball assembly clamped by the plurality of linkage assemblies to the latch body with a pivoting clamp plate such that all clamping forces between the pivoting clamp plate and the latch body are equalized. A motor for closing and opening the self-aligning precision latch by turning the lead screw to apply and release, respectively, the clamping forces between the pivoting clamp plate and the latch body.